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ABSTRACT

A new law in the Netherlands will amalgamate nursery and primary education into basic education serving students ages four to twelve years. This publication deals especially with the new approach needed for buildings meeting the needs of the combined groups. A summary of the standards for new buildings and the findings of a study examining the consequences of the integration of nursery and primary education and the influences of modern educational methods and organizations on the school building are provided. Conclusions of the study are that the existing directives, which made a connection only between the number of groups of children and the number of classrooms, had to be replaced by a much more differentiated approach regarding the spatial circumstances and the technical and physical conditions. Six primary schools are featured as documentation of the spatial programming. The text is supported by photographs, floor plans, and sketches. (Author/MLF)

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by C. Kamp

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INTRODUCTION

This issue of International School Building News has been devoted to school buildings for primary education in the Netherlands.

In the international professional press much attention is paid to developments in the U.S.A., United Kingdom, Germany, Denmark, Sweden and other leading countries, but little is published from the Netherlands in this respect.

There are probably several reasons for this, such as: Holland is a small country in which conspicuous events are exceptional, big experiments are rare, and progress is almost always a step-by-step development. Nevertheless, there are interesting developments in the school building sector, which are worth recording for the benefit of others.

The subject of this publication is confined to buildings for primary education, and more specifically to projects in which the ICS was involved.

Further information is available from the ICS-staff, P.O. Box 299, Rotterdam, the Netherlands.

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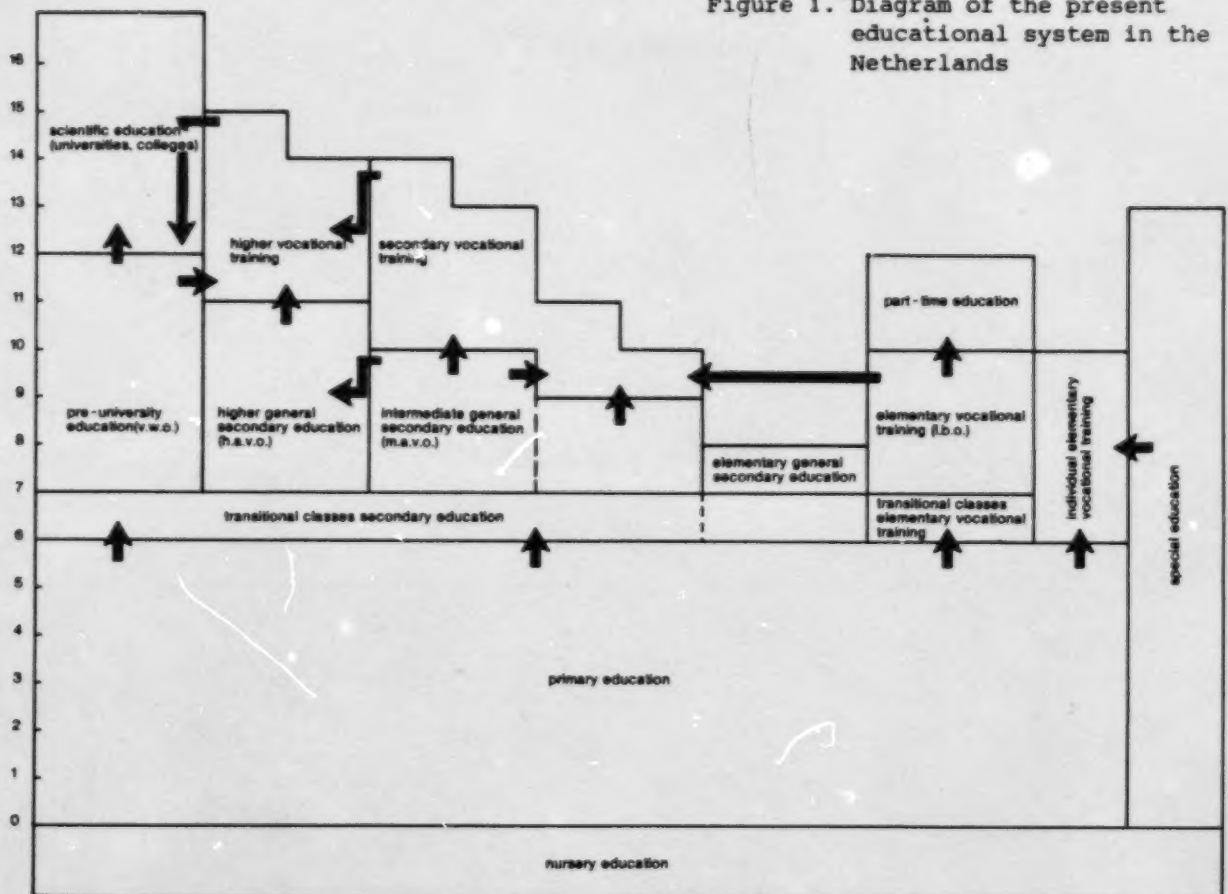
1. BRIEF SURVEY OF THE EDUCATIONAL SYSTEM IN THE NETHERLANDS

In the Dutch educational system teaching of children aged 4 to 12 years takes place in:

- . nursery schools for children of age 4 to 6 and
- . primary schools for children of age 6 to 12.

Thereafter secondary education offers a wide variety of possibilities out of which each child can choose according to his interests and abilities. A survey of the present educational system is shown on the diagram (figure 1).

Figure 1. Diagram of the present educational system in the Netherlands



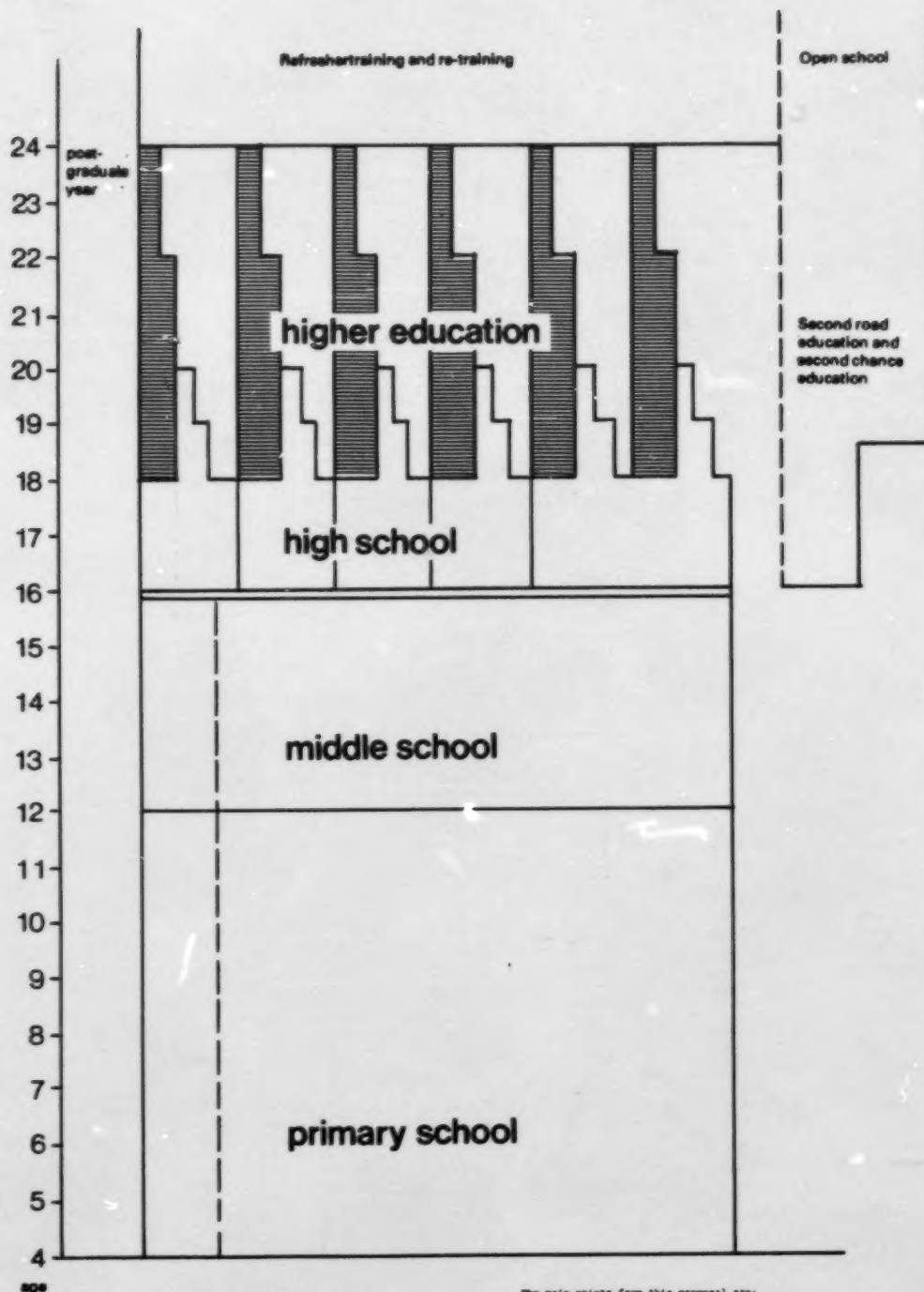


Figure 2. Proposal for a renewal of the educational system

The main points from this proposal are:

- a new primary school for the 4 to 12 age group, to take place of the present nursery school for 4 and 5 year olds and the primary school for 6 to 12 year olds;
- a middle school for all 12 to 16 year olds;
- a high school for those aged 16 and over, with 3 departments:
 - a two-year academic department, which gives direct entry to higher education;
 - a vocational department with a 3 to 4 year course, offering training for employment for medium-grade positions;
 - a vocational department with a 2 to 3 year course, offering training for lower grade functions;
- higher education, on the principle of the coordination of the universities and higher vocational education;
- the introduction of the open school as the last link in the educational structure;
- raising of the school-leaving age to 18;
- special education; fewer types of school and more attention paid to the educational needs of the child.

At the moment a new Act is in preparation, which will amalgamate Nursery and Primary Education into basic education in an age-range of 4 to 12 years. At the same time a new school type for secondary education is being prepared, covering an age-range of 12 to 16 years, giving general advanced education and preparing the children for the higher vocational or university education or combined part-time education and practical work (figure 2).

Returning to the subject of the present system, nursery and primary schools are under the responsibility either of a municipality (public schools) or the private school board (private schools). In principle, the curricula are the same in both cases. The private schools are mainly directed to preserving religious bases of education or introducing special teaching methods such as the Montessori system.

To ensure that the educational programme is carried out properly the supervision of the schools is in the hands of regional inspectors, directly responsible to the Minister of Education. Education for mentally or physically handicapped children is organized in the same way.

The above mentioned new Act on primary education implies the birth of a new type of school building. This publication deals especially with the new approach needed for buildings for this education.

2. BUILDING REGULATIONS AND FINANCING

The initiative to start preparations for a new school building rests in the hands of the school board (private schools) or the municipality (public schools). That this is so, is linked with the principle that parents should have the freedom to let their children be taught in a way which best suits their way of living and their views about preferable backgrounds of learning.

The financial means for the investments for all primary school buildings are sponsored by the municipalities, while whether there is need for establishing a new school building or not is approved by the Central Government. The municipalities obtain annual prefixed grants from the Government for the investments and running costs of the school buildings. These grants cover 70-90% of the expenditures.

Most schools are designed by private architects, even in the case of building for public schools. Basically all costs for building and maintenance have to be paid out of the public funds.

The private school board is free to spend more money on the building or the teaching aids out of its own means; this seldom occurs in practice.

The design of all new school buildings are examined by the Regional Educational Inspector who has, in his turn, to take advice from the Chief Building Inspector and the Local Medical Inspection. The plans are examined on the basis of the standards laid down in the building regulations issued by the Ministry of Education.

The two main aims of these regulations are:

- . guaranteeing certain minimum quality standards;
- . ensuring that the building costs do not exceed the total building allotment available for school construction.

The latter aim implies a very important measure:

The total gross floor area of any nursery or primary school is precisely laid down.



Primary school in Lelystad

In principle any school board or municipality is given full scope-within the calculated maximum gross area to meet its specific educational ideas in terms of building provisions.

However in practice there are several restrictions.
For example:

- . the minimum height and surface of each classroom is fixed;
- . the surface of glass windows should be at least $\frac{1}{5}$ of the surface of the classroom; and
- . sun-access of at least three hours a day should be possible in every classroom.

A summary of the standards are shown in figure 3.

As to the maximum gross area of nursery and primary schools, the following figures in figure 4 are used as a standard.

Figure 3: Summary of Building Regulations

Primary education

subject	item	nature of publication	description of the scope of the standard concerned
1. Spaces	classrooms	standard	. the number of classrooms related to the number of teachers
	other rooms	standard	. staffroom . storage
2. Areas	classroom	standard	. minimum floor area for each type of classroom
	building	standard	. maximum gross area related to the number of classrooms
3. Relation between spaces		standard	. visual relation between classrooms and lavatories
4. Lighting	daylight	standard	. possible sun access 3 hours a day in each classroom between 9 a.m. and 16 p.m.
			. minimum surface area of windows in main external wall of classrooms: one fifths of floor areas . secondary daylight from opposite direction

subject	item	nature of publication	description of the scope of the standard concerned
5. heat insulation and ventilation	glare control	standard	. no windows in the wall with the black-board . sunshades at the windows with sun access
	darkening	recommendation	. darkening in the multi-purpose room or in one of the classrooms
	heat transmission		. not specified
	temperature	recommendation	. classrooms 18°C . multi-purpose rooms 18°C . staffrooms 20°C
	ventilation	standard	. half of the total surface area of windows to be opened . provisions for cross ventilation
	saving fuel		. not specified
6. Acoustics	external noise		. not specified
	sound insulation	recommendation	. 40 dB between two classrooms
	reverberation time		. not specified

subject	item	nature of publication	description of the scope of the standard concerned
7. Fittings and services	electrics/water	standard	. in each classroom at least one power-point
	gas		. in each classroom a sink . not specified
8. Finishes	walls	standard	. the walls behind the wardrobe must be washable up to 1.50 m
9. Sanitary installation	toilets	standard	. two toilets to each classroom
	sinks		. one sink to three toilets . one sink in staffroom . in each classroom one sink
10. Safety	fire-alarm		. not specified
	escape route		. not specified
	fire fighting installations	standard	. fire fighting installation
	exit	standard	. second staircase provided, on each floor with more than 100 workplaces

subject	item	nature of publication	description of the scope of the standard concerned
	fire resistance	local standards	. not specified on the national level. (There are no special rules for fire resistance for local bearing structures in schools. Local regulations are applied, as well as recommendations by the Institution for Standardisation in the Netherlands, drawn for building in general).
	evacuation exercises		. not specified

Figure 4: Some examples of maximum gross area

Nursery education		Primary education		Total	
no. of children	m2 gross area	no. of children	m2 gross area	no. of children	m2 gross area
- 33	160	26 - 60	300	59 - 93	460
34 - 66	363	156 - 198	725	190 - 264	1090
67 - 99	460	265 - 297	1060	332 - 396	1520
100 - 132	585	364 - 396	1390	464 - 528	1975

3. A STUDY OF THE SPATIAL CONSEQUENCES OF NEW PRIMARY EDUCATION

To examine the consequences of the integration of nursery and primary education, the Information Centre for School Building has carried out an investigation, the results of which will shortly be published as a set of recommendations both to replace and complement the present national directives. The investigation thoroughly studied the influences of modern educational methods and organisations on the school building. It soon became clear that the existing directives, which made a connection only between the number of groups of children and the number of classrooms, had to be replaced by a much more differentiated approach as regards the spatial circumstances and the technical and physical conditions.

Naturally it was not possible in this study to ignore the existing financial regulations and other legal stipulations concerning such things as medical and sanitary aspects. Nevertheless these recommendations will constitute an important step on the road towards innovating school buildings for primary education.

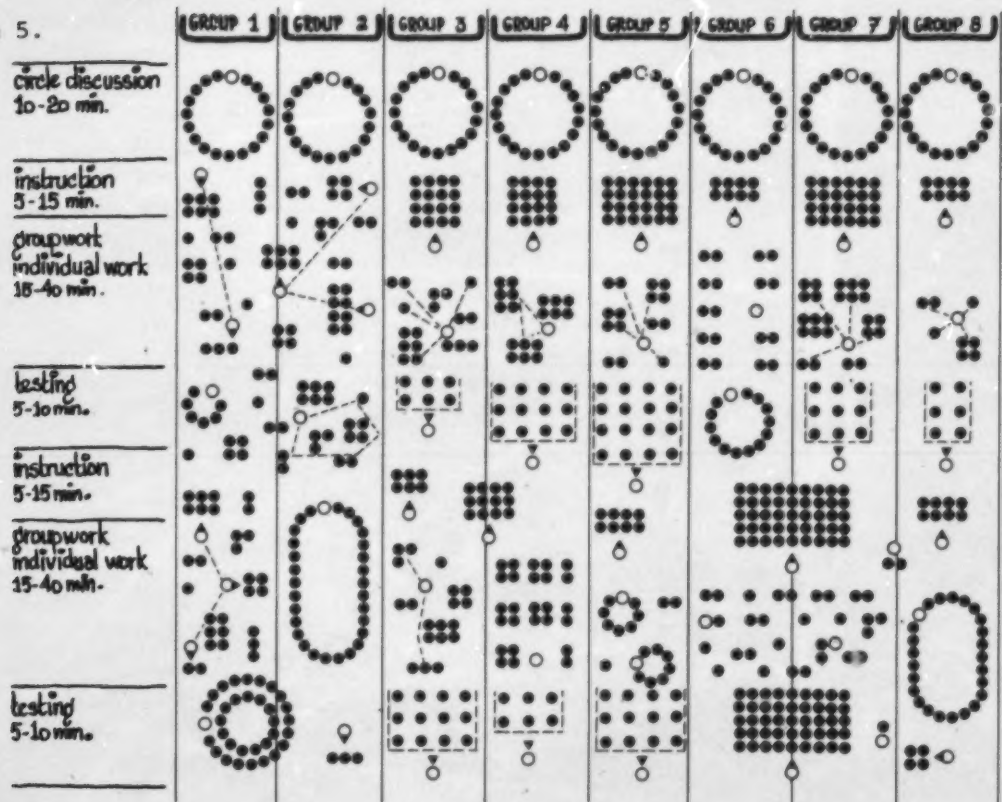
The main features of this new approach are:

- . the age of the child decides the degree of privacy, the scale, and the design;
- . the educational and social aims decide the function, the lay-out and the equipment of the spaces;
- . the division lower forms - upper forms decides the frequency of occurrence of communal rooms, the principal lay-out of the building, the lay-out of the site, etc.;
- . the activities decide the requirements regarding finishes, acoustics, lighting, equipment and furniture, etc.;
- . the composition of the groups decides the number of rooms, the type of room and their mutual communication;
- . the sizes of the groups decide the surfaces of the rooms;
- . the teaching situations decide the lay-out and furniture of the rooms;
- . the frequency and the lengths of time taken up by the activities decide the priority to be attached to adequate spatial surroundings;
- . the specificity of a given activity decides the architectural fixity of conduits for water, electricity, etc., or of adapted floor covering, acoustics, etc.;

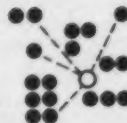
- . the aids used decide the requirements as regards wall surface, spatial lay-out, acoustics, lighting, course of the conduits, etc.; and
- . the furniture used decides the surfaces, the lines of communication, and the usability for a certain age group (stature, etc.).

The next diagram (figure 5) shows the various teaching situations during a school morning

Figure 5.

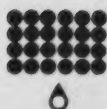


Class discussion, discussion in a circle



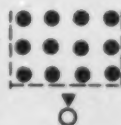
Group work. individual work

during the activities the teacher occupies himself with different groups in turn



Introduction, instruction

during instruction to large groups other teachers may occupy themselves with a smaller group



Testing

the children report as a group to the whole group or in a small group to the teacher, for instance.

4. SOME BASIC ELEMENTS FOR SPATIAL PROGRAMMING

Of course designers aim at planning a school in such a way that space for learning activities is as large as possible. Generally speaking, such an option can be implemented by minimizing the size of ancillary rooms and circulation area. Within different forms of teaching organisation, it is necessary that all education areas are dimensioned and grouped in such a way that the users can be given all latitude as to the choice of forms of organisation and working. The school building, being an envelop for a number of learning activities, should contain as many spaces as possible with a multi-purpose character. In the more open-plan school the corridors are part of the learning space; with size, location and separation being dependant on the users' working system of the moment.



An example of a spatial programme is given in figure 6, which shows a possible space division of an 8 class, a 12 class and a 16 class school for basic education according to the present possibilities. Other divisions of the total floor area are possible, but it should be kept in mind that a limited part of the total floor area can be used for educational purposes. In the models given this part is approximately 65%. It is, however, important to note, that a percentage of 70% can be obtained when the floor plan is designed efficiently, without reducing the size of the necessary ancillary rooms to an unacceptably low level.

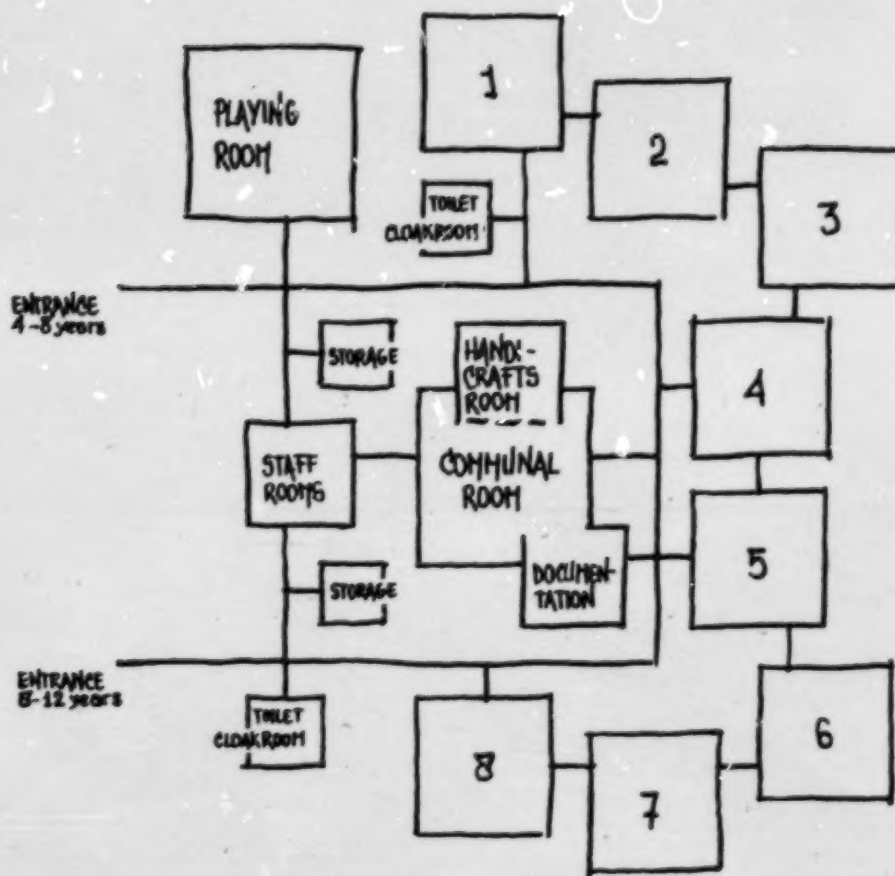
In figure 7 a functional diagram is shown of the 8 class primary school (age range 4-12 years, about 240 pupils).

Figure 6: Some examples of a spatial programme

description	8 class primary school (240 pupils)	12 class primary school (360 pupils)	16 class primary school (480 pupils)
<u>Infants</u> (from 4 to about 8 years)			
home bases (4)	268	390	520
playing room	90	90	90
room for multiple use	-	60	80
toilets (8) + wash- rooms	20	30	40
staff toilet/cloak- room	2	2	4
cleaners closet	1	1	2
cloakroom/circulation	60	70	80
1. subtotal	441	643	816
<u>Juniors</u> (from about 8 to 12 years)			
home bases (4)	240	360	480
room for multiple use	75	85	100
documentation centre	20	25	30
handicraft centre	25	30	30
toilets (8)	20	30	40
cloakroom/circulation	45	50	70
2. subtotal	425	580	750

description	8 class primary school (240 pupils)	12 class primary school (360 pupils)	16 class primary school (480 pupils)
<u>Staff rooms/ additional rooms</u>			
room for the head master (admini- stration)	15	18	20
staff room teachers	20	25	30
room for school physician, logopedi- cian, consulting room, etc.	8	10	12
pantry	6	8	10
staff cloakroom + toilets	8	12	15
teaching material storage	25	30	35
archives, etc.	-	6	12
caretaker room	-	-	10
cleaners closet	2	4	6
storage, waste/paper	2	3	5
central heating with metal cupboards	8	10	15
3. subtotal	94	126	170
totals of 1, 2 and 3	960	1349	1736
general circulation room + entrances	50	60	90
	1010	1409	1826
about 8% for walls/ construction	80	111	149
total gross space	1090	1520	1975
relation between teachers spaces and gross spaces	0,65	0,67	0,67

Figure 7. Functional diagram for a primary school with 8 classrooms



primary school in Lelystad



5. DOCUMENTATION OF SCHOOL BUILDINGS



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25	B	"	"	Bleiswijk
28	C	"	"	Nuenen
31	D	"	"	Terwinselen
37	E	"	"	Zaltbommel
41	F	"	"	Lelystad

A. School with 8 classrooms for basic education

Building owner : School board Roman Catholic Nursery and
 Primary Education, Assendelft
 Architect : Van Aalderen en Daalder, architects
 Design : 1973/1974
 In use : mid 1976
 School : Bijenkorfschool
 Address : Saenredamstraat, Assendelft.

Explanation of the design

Ample communication between the teaching areas was the aim. The staff rooms have a central situation. The starting point was the division of the school into initial group, lower forms and upper forms.

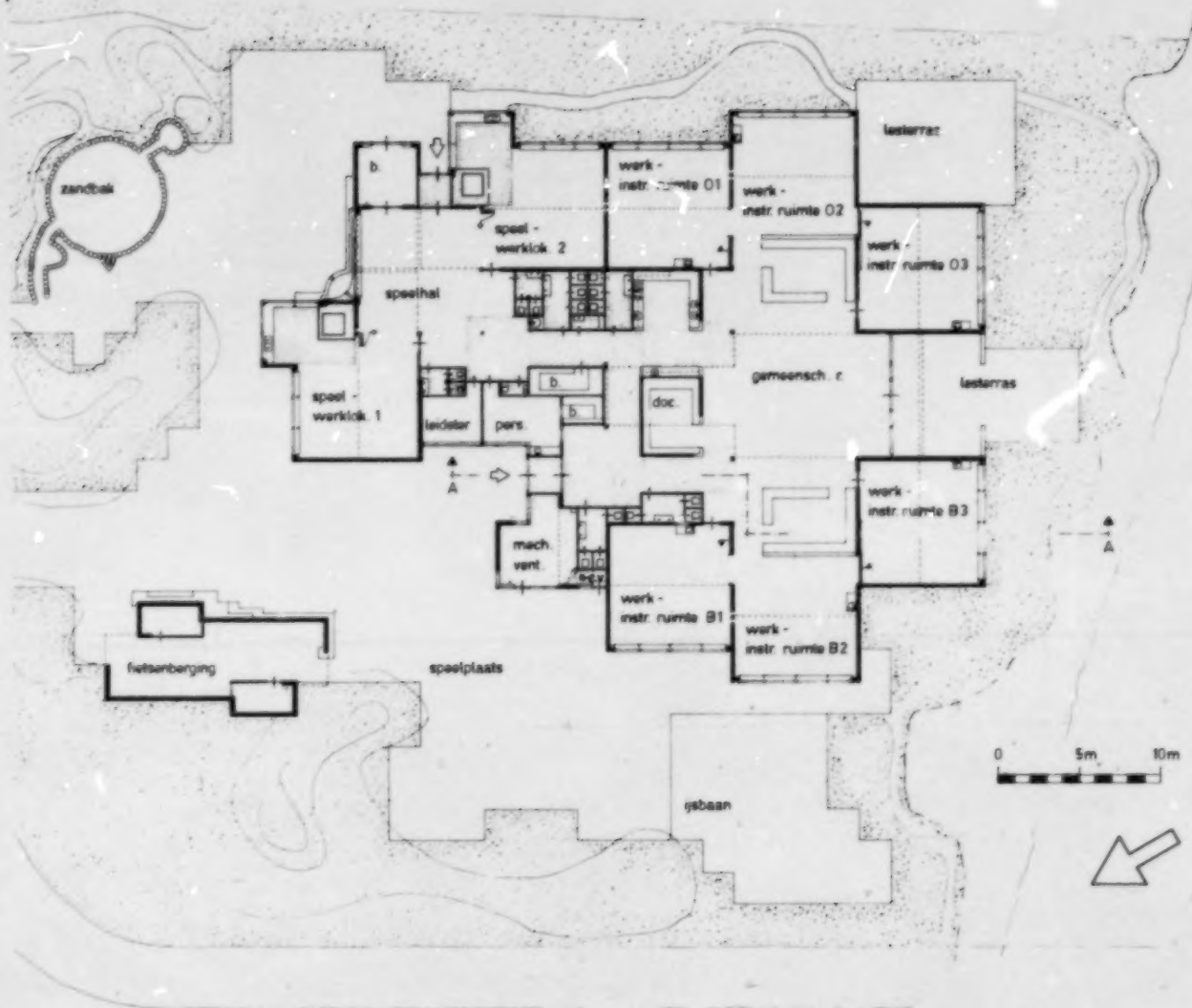
Technical data

Construction: wooden beams, span 7,6 m. on wooden columns. The brick walls are non-load-bearing. The higher roofs are supported on the upper edges of the beams, the lower roofs on the lower edges. Top light enters the classrooms and the centre of the school where the beams are.

Installations: the warm-air heating and mechanical ventilation enable the rooms to be used in open communication with each other.

Surface analysis

	m2	m2
School building: gross floor space		1.010
net floor surface of teaching rooms		724
2 play- and workrooms of 70 m2 each	140	
hall for playing	55	
6 classrooms of 56 m2 each	336	
2 study and processing rooms of 45 m2 each	90	
multi-purpose room	73	
documentation centre	15	
mess handicrafts centre	15	
percentage net/gross 72%		
site : surface school site		4.000
built-up surface		1.120
playgrounds		1.000
green area		1.880



Explanation to the floor plan

zandbak
fietsenberging
speelplaats
ijsbaan

lesterras
speel- werklokaal
werk- instr.ruimten 01/02
speelhal
werk- instr.ruimte 03/B1/B2/B3
gemeenschapsruimte
documentatie

leidster/pers.
mech.ventilatie

sand pit
bicycle shed
playing field
skating area (occasionally in winter)
outdoor teaching terrace
play-workroom 4-6 year
play-workroom 6-8 year
hall
home base 8-12 year
multi-purpose area
library, documentation-
centre
teachers rooms
boilers, mechanical
ventilation plant

B. School with 8 classrooms for basic education

Building owner : School board Roman Catholic education
Architect : Treffers & Polgar, architects,
Waddinxveen-Voorburg,
design by K. Polgar
Design : 1972/1973
In use : 1974
School : De Oosthoek
Address : IJsvogellaan, Bleiswijk

Flexibility for teaching

In the primary school, a 3 m. wide sliding wall can add about 50 m² to the classrooms. This additional space may be used for a variety of purposes, such as individual work and work in groups, special instruction, etc. The additional space of the 4 classrooms of the upper forms makes a single floor surface of 180 m² together with the communal room. All internal walls of the classroom are made of panels and do not depend on the steel load-bearing construction. By removing these walls a larger spatial unit may be created.

Integration

The mutual cohesion of the additional rooms and the communal room of the primary school with the playroom and the hall for playing of the nursery school promotes contacts and provided possibilities for integrated programmes.

Sloping roofs of classrooms

the strip of light between the sloping roof and the flat roof (see cross-section) provides the classrooms with even natural light with the aid of double synthetic panels (thermal insulation, no maintenance, unbreakable, no need for sun shades). The sloping roofs also improve the acoustics in the room and contribute to the pleasant external appearance of the school.



Warm-air heating

The entire school is provided with a heating system combined with mechanical ventilation. It ensures the mechanical ventilation of the rooms also when they are not heated. The entire school has carpeting, with the exception of the sanitary rooms. This is of importance for sound absorption when the group rooms are used in open

connection with the study rooms. It also makes the interior pleasant and cosy for the children and quiet for the teachers.

Technical data

The ground floor is made of concrete elements on reinforced concrete foundation beams supported on wooden piles. The load-bearing construction above the ground floor is of steel. The external walls and the internal walls of fixed cores (toilets, stores, staff rooms) are made of brick. Partitions between group rooms and additional rooms are system-built plaster boards. They can be removed without changing the load-bearing construction. External frames: hardwood.

Top light strips: Kalwall elements.

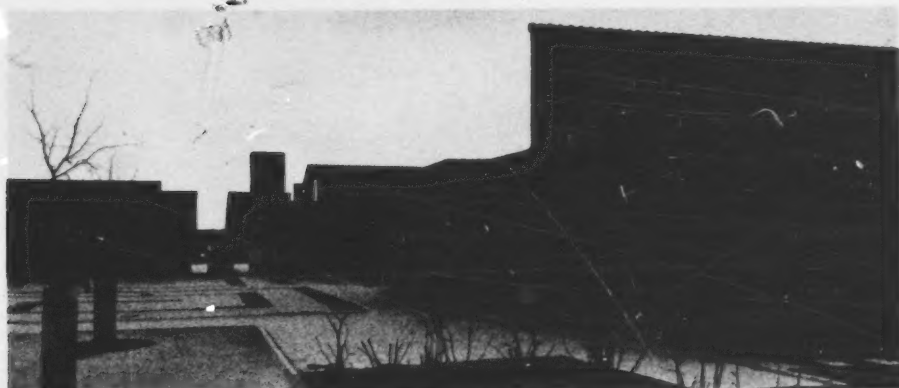
Roof edges and external timber work: deal, covered with paint of great opacity.

Floor covering: fixed carpeting.

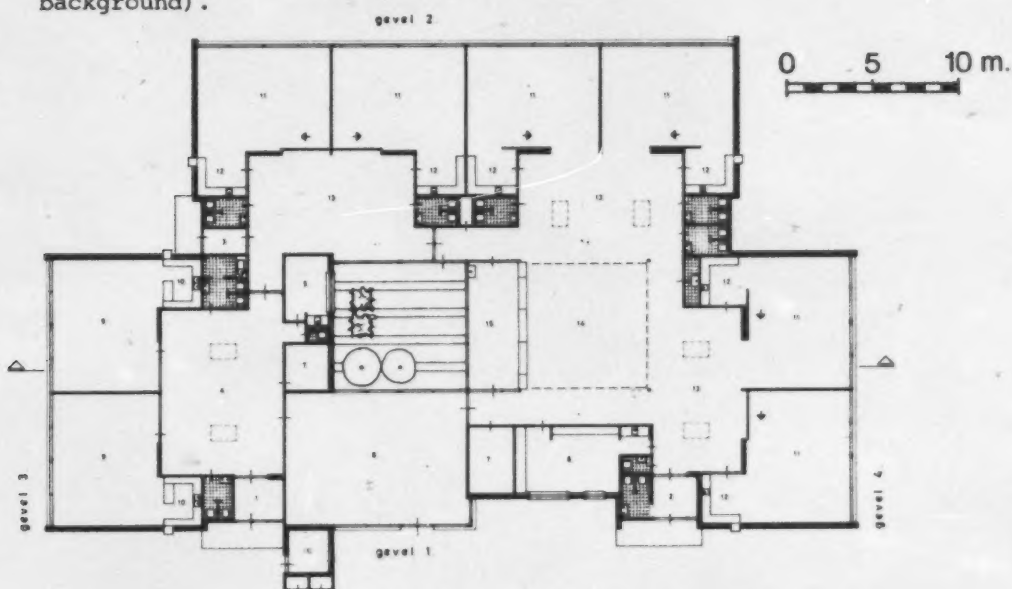
Ceilings: rock wool panels in the classrooms and white wood-fibre panels in the additional rooms.

Analysis of surfaces

	m2	m2
school building: gross floor surface		1.090
net surface of teaching rooms		760
2 workrooms at 56 m2 each	112	
playroom	84	
6 classrooms at 56 m2 each	336	
hall for playing	49	
3 rooms for multiple use/ documentation/study of		
34 m2 each	102	
communal room	52	
handicrafts room	25	
percentage net/gross 70%		
site : surface of school site		3.800
built-up area		1.150
playgrounds		850
green area		1.800



Playground for the upper forms (bicycle shed on the right, with dwellings in the background).



Explanation of the floor plan

- | | |
|----|--|
| 1 | entrance to nursery school |
| 2 | entrance to primary school |
| 3 | entrance to lower forms |
| 4 | hall for playing, nursery school |
| 5 | headmasters' room with pantry |
| 6 | staff room with pantry |
| 7 | store for teaching aids |
| 8 | playroom |
| 9 | workroom |
| 10 | sinks, etc. for workroom |
| 11 | classroom primary school |
| 12 | sinks, etc. for classroom |
| 13 | additional room |
| 14 | communal room |
| 15 | handicrafts room |
| 16 | central heating installation, meters, etc. |

C. School with 8 classrooms for basic education

Building owner : School board for non-religious private
education
Architect : De Jonge, Hoekstra, Roosenburg,
architects, Nuenen
Design : 1972/1973
In use : August 1974
School : De Wettenaar
Address : Brabantring 1, Nuenen.

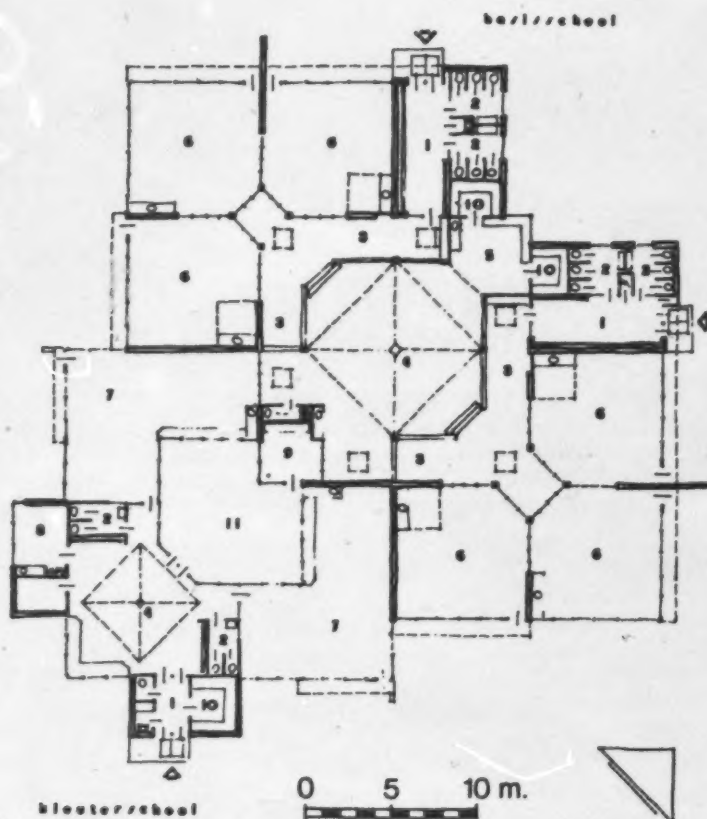


Explanation of the design

De starting point formulated by the School board together with the headmaster and the architect, was the integration of infant education and basic education. This integration had the architectural consequence that the central space of the basic school was joined to the second class of the infant school. With the exception of a number of ancillary rooms constructed with load-bearing walls and floor joists, the main structure is a skeleton construction composed of columns with loose profiles and steel trusses, and the secondary structure is wooden floor joists.

Technical data

Foundation: polls.
Brickwork : concrete blocks.
Floors : floor elements.
Roof boarding: fibre-board with poly-urethane insulation.
Ceilings : acoustics system-built ceilings.
Roof edges and finishes: multiplex, water- and weather-proof.
Floor covering: needlefelt carpet.
Flexible walls: folding panels covered with needlefelt.



Explanation of the floor plan

- 1 entrance and cloakrooms
- 2 toilet blocks
- 3 documentation and study rooms
- 4 communal rooms
- 5 handicrafts space
- 6 classrooms 6-12 year
- 7 playroom and workroom 4-6 year
- 8 staff room
- 9 headmaster and staff
- 10 storage space
- 11 patio



Every classroom of the lower and the upper forms can be brought into open communication with other classrooms and with the communal room by means of the folding wall with its wide panels. The panels are covered with plain carpet on both sides.

Surface analysis

	m2	m2
school building: net surface		1.010
net surface of teaching rooms		708
2 play- and workrooms of 76 m2 each	152	
hall for playing	40	
6 classrooms of 56 m2 each	336	
handicrafts room	20	
communal room	160	
percentage net/gross 70%		
site : surface school site		6.400
built-up area		1.070
playgrounds		1.500
green area		3.830



D. School with 19 classrooms for basic education

Building owner : Roman Catholic school board,
Terwinselen
Architect : J.H.M. Duijsens B.V.,
architects, Kerkrade
Design : 1974
In use : 1975
School : De Doorkijk
Address : Singelweg, Terwinselen/Kerkrade

Explanation of the design

Single-storey construction promotes the desired integration of the various levels of education and offers maximum flexibility both from the functional and from the organisational points of view. There is better communication and the allocated areas may be used to the best advantage.

Orientation and zoning

An elongated ground plan that nevertheless has sufficient width enabled an orientation to be realised that meets the requirements imposed concerning access of sunlight and daylight in the classrooms. Entrances and exits were so situated that direct communication with the adjoining streets is avoided. It has been the aim to create good relations between the building and its environment. Integration of internal and external spaces has been the intention. Noisy zones -playgrounds and playrooms for the infants- have been projected along the streets, while where possible groups rooms are on the quiet side of the site. It has also been the object to separate quiet and sound-producing zones spatially, so that annoyance is restricted as much as possible.

Flexibility

The available rooms offer working space to groups of varying sizes, or can be adapted to the size of the group, when educational reasons require this, by means of removable partitions or folding panel doors. This flexibility requires a frame without load-bearing walls. In the large empty space, the ceiling and the floor covering are laid, with the removable system-built walls constituting partitions. The spatial lay-out thus remains flexible. It is also possible to omit the lower fronts that connect a number of classrooms with the communal room.

The system used also enables changes to be made in the lay-out of the building at a later stage. Unchangeable units such as toilets, central heating installations and stores have been placed eccentrically and so arranged that they will not be in the way when, in the future,

the present classrooms are made larger or smaller. The communal rooms and the rooms for multiple use have been so situated that all kinds of activities with larger groups can take place in them without the need for many adaptations. The differences in educational levels, such as those between infants and lower forms, play a part in this. The installation of movable clothes-racks promotes the efficient use of these rooms.

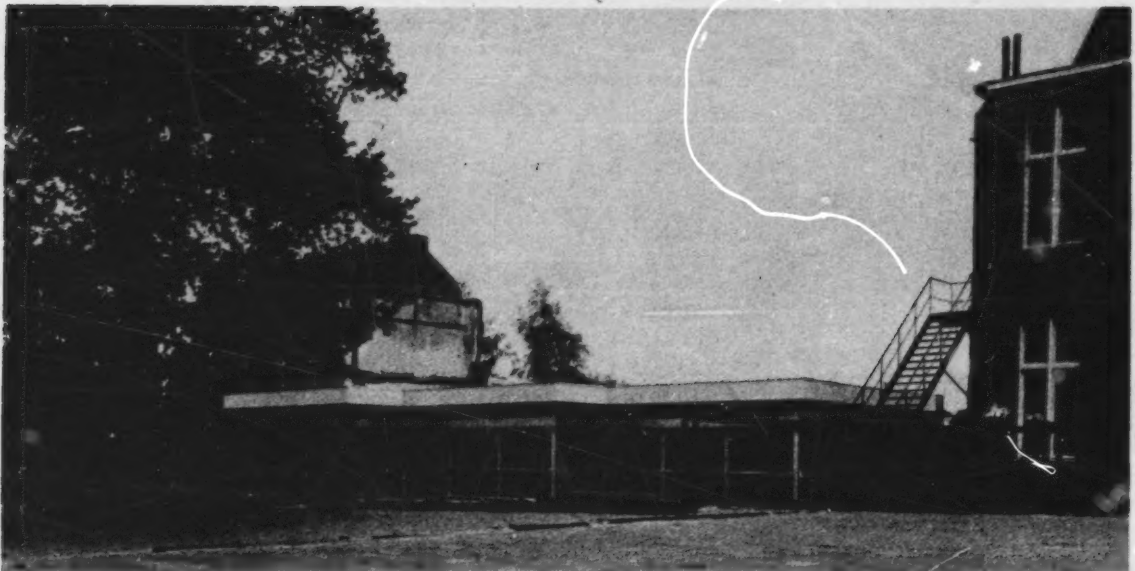
Organisation

The total organisation of the building is based on 4 age-groups: the infants, the lower forms with 6 to 8 years olds, the middle form with 8 to 10 years olds, and the upper forms with 10 to 12 years olds. The design aims not only at visible integration (the different communal rooms for the different age groups communicate) but also at the greatest possible separate identity on the outside for the four groups. The classrooms are staggered and each age-group has its own entrance.

Heating and ventilation

From the many possible heating and ventilation systems, warm-air heating was chosen for the following reasons:

- a) Very short initial heating time (an advantage in operation), good regulation, an air change of 15/20 m³ per person per hour, even temperature distribution, permanent air change also in spring and autumn, cool-



The school was built on the site of the former school. This required much cutting and contriving in order to find a good situation for the new construction because part of the old building continued to be used. Only when the new building was taken into use was the rest of the old building demolished.

ing in summer, filtered air (not dry owing to burnt dust), no loss of space owing to presence of radiators, etc. (which is an advantage as to optimum flexibility), no leakage or freezing pipes, and relative humidity is kept constant.

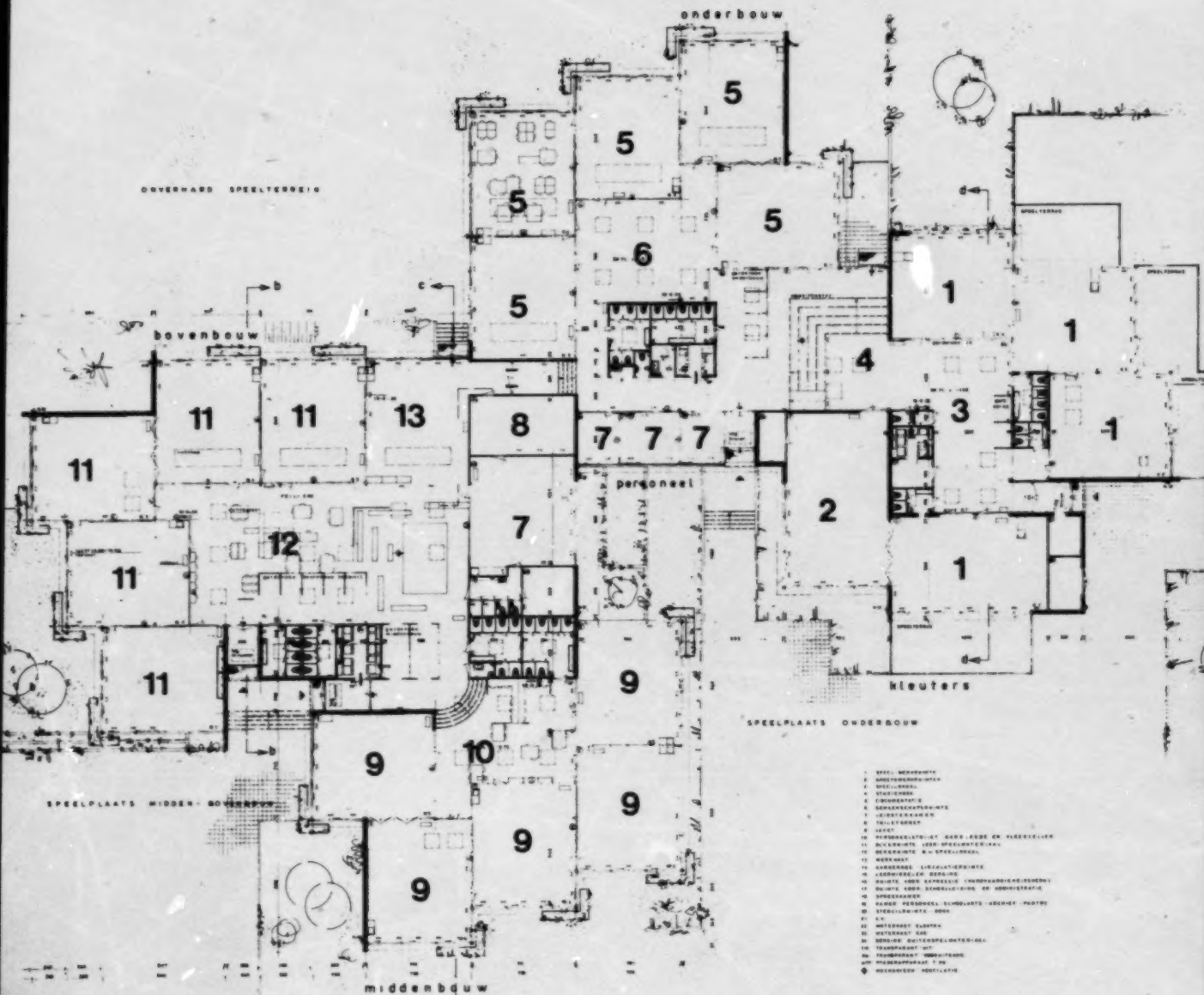
- b) In view of flexibility, account has also been taken of a different placing of the partitions and the use of the spaces outside the classrooms as space for study.
- c) The average temperature in all rooms is 20° centigrade. Investigation has shown that the air units are almost noiseless, so that no provisions have to be made in this connection. The strenght of speech-sound through grids and channels is lower than that of the noise coming through doors and windows, so that here, too, the requirements are met.

Surface analysis

	m2	m2
school building: gross surface		2.310
net surface of teaching rooms		1.641
3 workrooms of 59 m2 each	177	
playroom - workroom	70	
playroom	84	
15 classrooms of 59 m2 each	885	
room for infants for multiple use	35	
multi-purpose rooms lower forms (2)	130	
room for documentation and study middle forms	65	
room for multiple use, study, documentation upper forms	130	
handicrafts room	50	
percentage net/gross 71%		
site : surface of site		9.000
built-up surface		2.360
playgrounds		1.900
green areas		4.740
site surface of gymnasium		1.000

Explanation of the floor plan

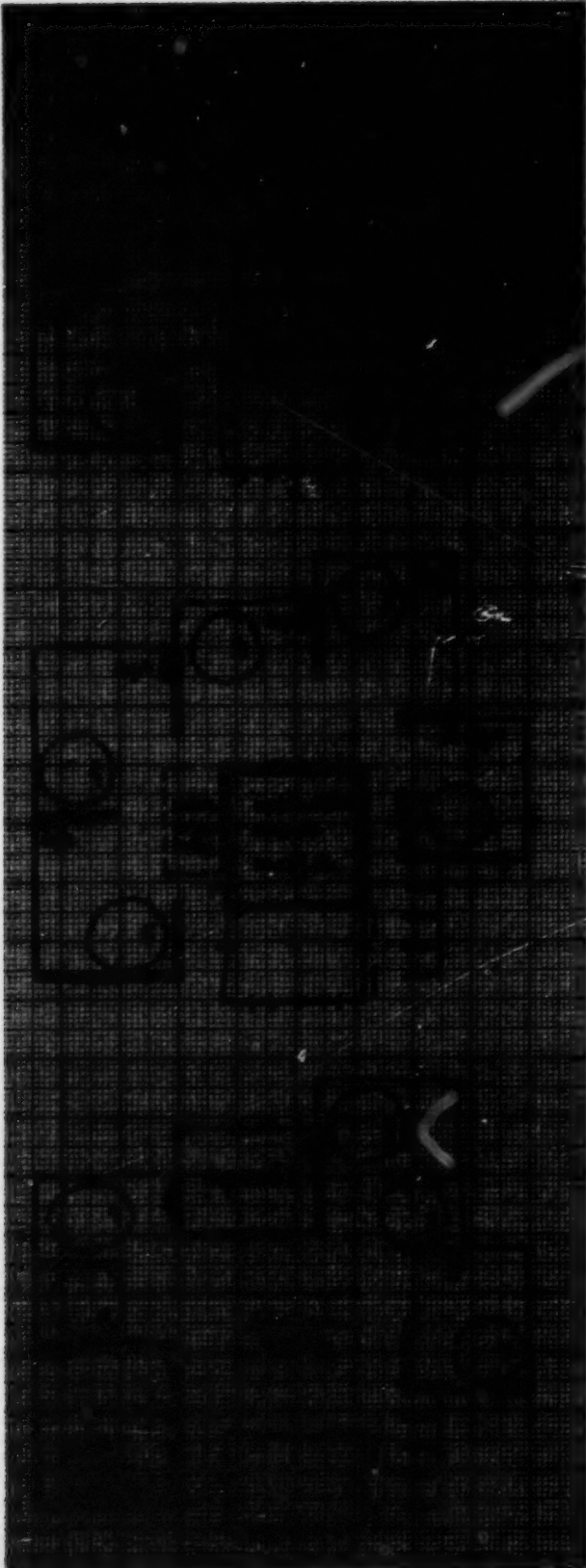
- | | |
|----|--------------------------------|
| 1 | home bases 4-6 year |
| 2 | playing room |
| 3 | hall |
| 4 | theatre |
| 5 | home bases 6-8 year |
| 6 | study area |
| 7 | teachers room |
| 8 | storage |
| 9 | home bases 8-10 year |
| 10 | study area |
| 11 | home bases 10-12 year |
| 12 | study area, multi-purpose room |
| 13 | handicraft |



- 1 speelruimte
- 2 speelruimte
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- 100 speelruimte



Shortly before the school was put into service the wall manufacturer and the school furniture manufacturer helped to make experimental placings of the removable partitions. The two accompanying photographs of the documentation room of the lower form present the situation when classrooms are "closed" and "open".



The sketches constitute ideas for other lay-outs.

separate room for
discussion + instruction
+ self-expression

communal room for docu-
mentation and groupwork

separate room for discus-
sion
+ self-expression
+ expression (short)

communal room for

closed { instruction (long)
 with extra aids
 music

open { documentation
 groupwork

separate room for discus-
sion
+ instruction (short)

communal room for

closed { instruction (long)
 with extra aids
 music
 self-expression

open { documentation
 groupwork

E. Schools for primary education

(2 schools with 8 classrooms each).

Building owner : Boards of R.C. and Protestant education at Zaltbommel
Architect : Pál Stipkovits B.V., Rijswijk (South Holland)
Design : 1974/1975
In use : August 1976
Address : Aakstraat-Klipperstraat, Zaltbommel

Explanation of the design

The school building, which is a "double building" for Roman Catholic and Protestant education, contains 8 classrooms for each type, a communal room and various work areas for group work and a documentation centre. The room for the teachers and a room for TV, film, music and creative play will be used by both schools. Space has been set aside on the site for a gymnasium, and the possibility has been taken into account of suitable accommodation for 4 to 6 year olds by means of simple adaptation and extensions in the rooms for the lower forms. One or more classrooms may be exchanged between the two types of school if a change in the number of pupils were to require this.

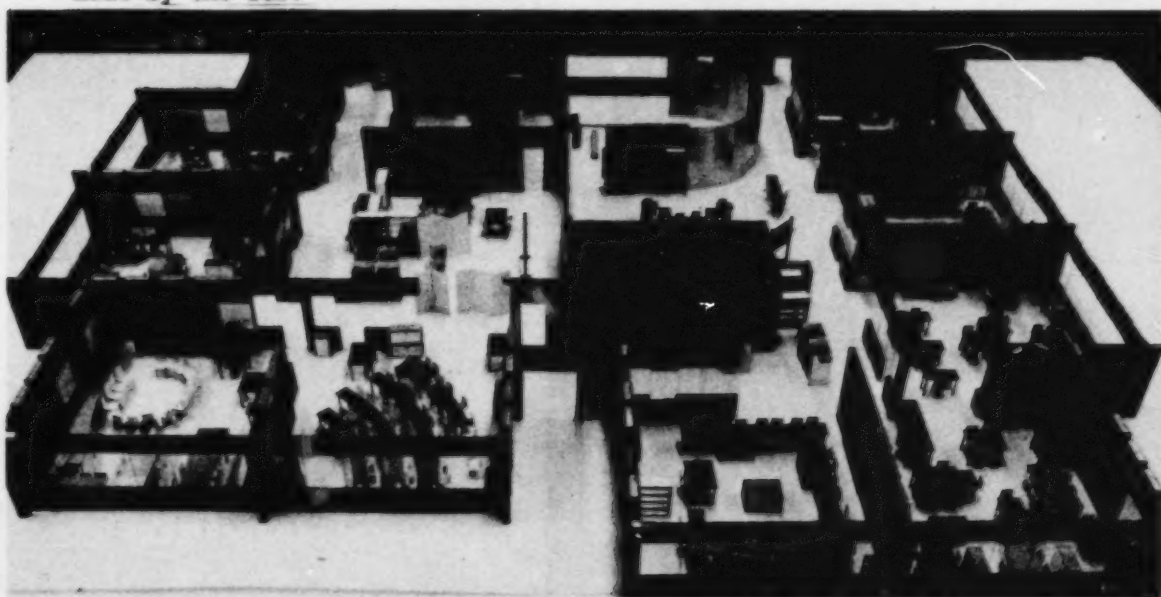
In close consultation with the members of the building committee, the ICS prepared the programme of requirements and gave advice on equipment. Important starting point were the educational and organisational wishes formulated by the school teams. In the sense of school space, this meant that much emphasis was placed on the presence of many "informal" rooms, which would have to be suitable for individual work and for smaller and larger groups, and on the best possible internal communication. The classroom units (lower forms 6 to 8 and upper forms 8 to 12 year olds) were realised in four units grouped around the processing and documentation rooms. The communal rooms are situated in the centre of the building complex. Each unit has its own access to the playground and the cloakroom and toilets. One of the entrances (Klipperstraat) is also the main entrance, with the caretakers' accommodation.

With the exception of the classrooms that can be closed with large sliding doors, and of the film and music room that must be closed off from other spaces, all classrooms are "open" and informal. The traditional assembly hall is absent; nevertheless a large area can be created for manifestations, parents' meetings, etc. For normal school use, the film and music room offers sufficient space for large groups assembled in a circle around the sunken sitting area. The use of removable wall panels and a freely-suspended roof construction make it possible to change the sizes of rooms in future if educational developments require this. Separate playgrounds

Explanation of the floor plan

1 - 4	classrooms lower forms
5 - 8	classrooms upper forms
info	information-documentation, work area
b	store
pers	staff
doka	dark room, space for audio-visual aids, film booth, etc.
film, TV	space for school television, film, slides, music, theatre, self-expression
gem.r.	communal room
b + stence	space for administrator, copying room

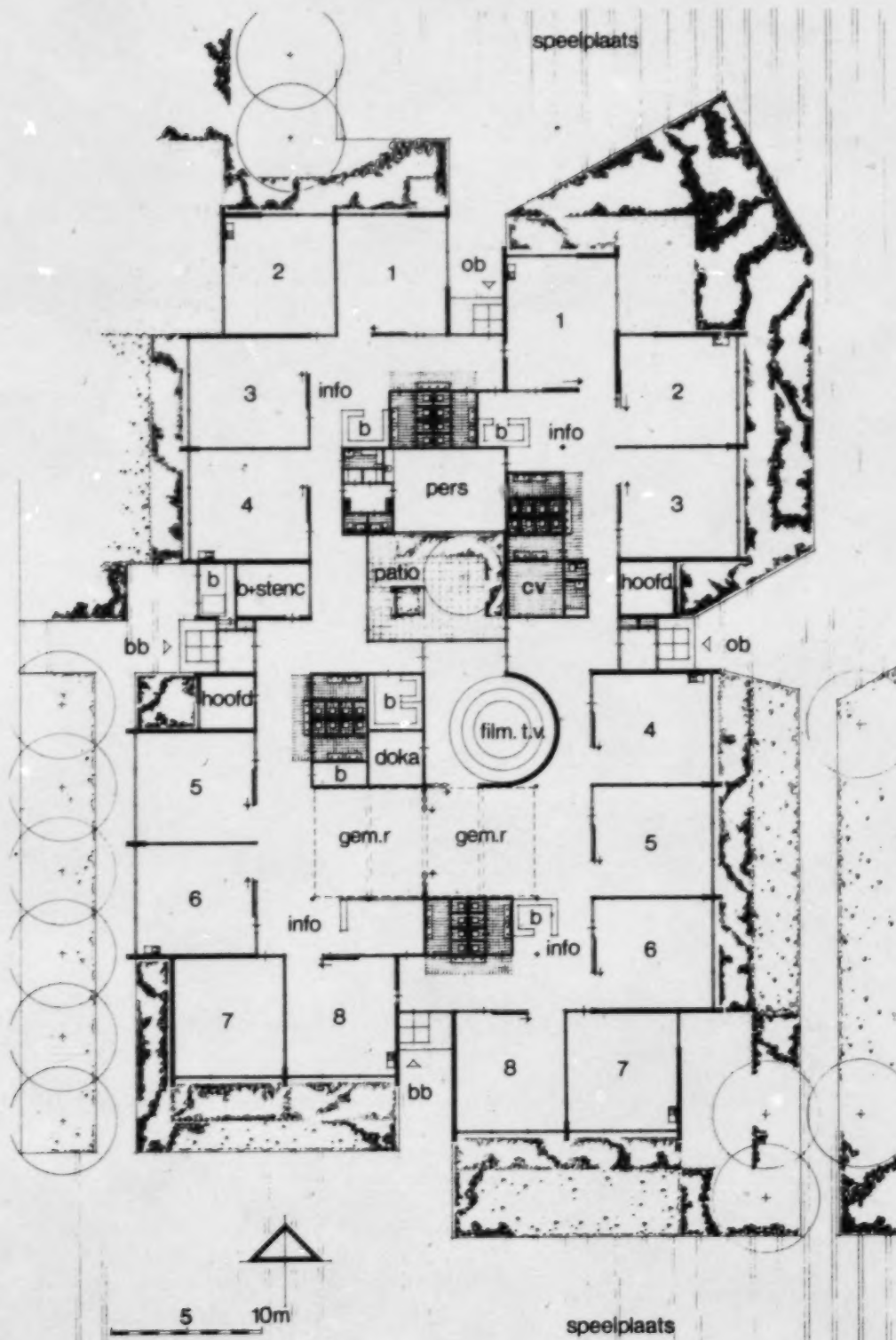
Discussions were held on the most desirable lay-out of the school in the design stage, with the aid of a model made by the ICS.

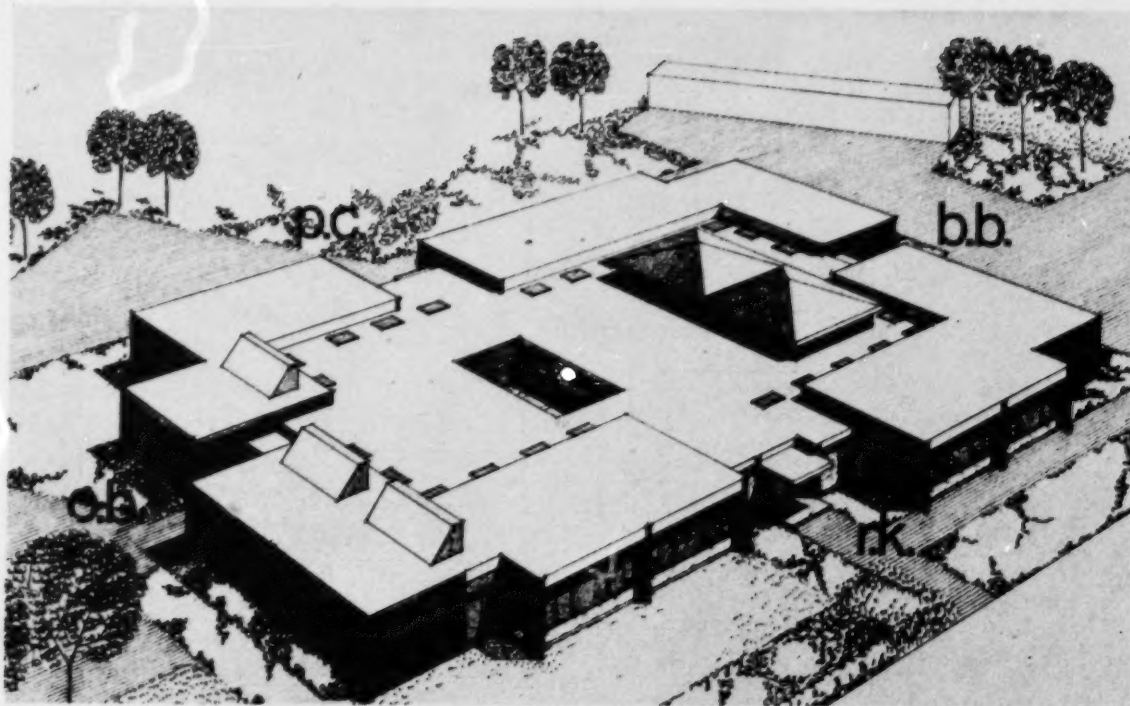


have been designed for the younger and older children, of a character and lay-out that have been adapted to the different ages and needs.

Technical data

The load-bearing construction is a steel framework. The ground floor is a system-built floor. The roof is composed of glued wooden beams, roof panels, and an insulation layer with a bituminous roof covering on top. The ceilings of the classrooms are white wood-fibre panels; the other rooms have lath ceilings. The external walls are of brownish-yellow hand-made bricks; the lower fronts are made of white ornamental broken-concrete blocks. All frames and windows are in tropic wood. The lower windows have aluminium sliding frames. All external windows and fronts are provided with double glazing. The cavity walls have extra thermal insulation.





Surface analysis

	m2	m2
school building: gross floor surface		1.900
net surface of education rooms		1.340
classroom for youngsters	62	
15 classrooms of 58 m2 each	870	
2 communal rooms of 84 m2 each	168	
film and TV-room	70	
4 information centres	170	
percentage net gross 71%		
site : surface of site *)	about	7.000
built-up area		2.050
playgrounds		1.800
green areas		3.200

*) exclusive of site reserved for gymnasium.

F. School with 9 classrooms for basic education.

Building owner : Municipality of Lelystad
Architect : P. Jellema of Public Works Department
 of Southern IJsselmeer Polders
Design : 1973
In use : August 1974
School : De Regenboog
Address : Voorhof, Lelystad



Explanation of the design

The architect designed the school with the aid of the building system developed for the comprehensive school for secondary education at Lelystad (see International School Building News 7/1973/1). The programme of rooms in the programme of requirements made by the ICS could be realised in this system, and an almost unlimited flexibility makes any spatial lay-outs possible.

The starting point of the design was that the user himself must be able to form the desired lay-out on the basis of the teaching situation at a given moment, and should not be faced with a "school landscape" that he cannot accept or with a lay-out that functions well now but will be an impeding factor later. It should be

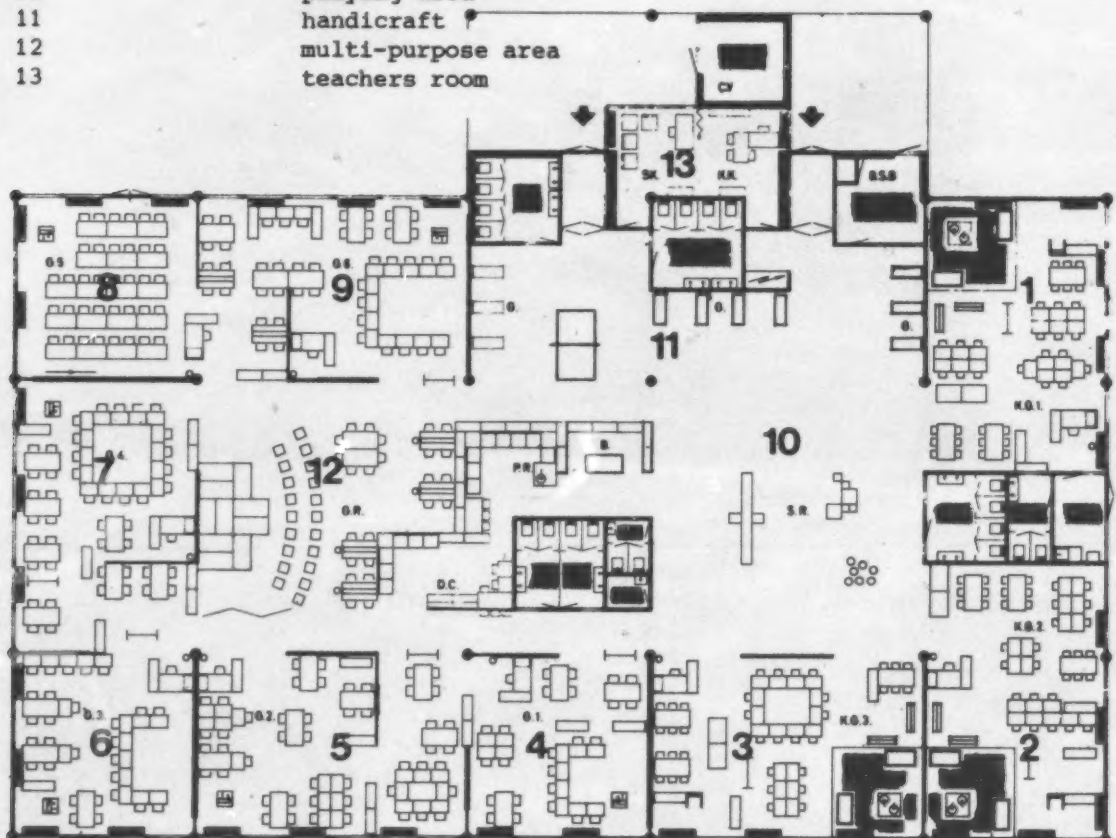
mentioned that the consistent application of this principle conflicted at certain points with the requirements of the building decrees, so that compromises were inevitable. The building cost of the project is very favourable compared with the average national figures.

Technical data

The ground floor is composed of concrete elements on reinforced concrete foundation beams. The load-bearing construction above the ground floor consists of wooden columns, laminated wooden girders and wooden beams with roof slabs on them. The external walls are partly concrete blocks and partly sandwich panels. The fixed units in the building are made of concrete blocks. The partitions between the classrooms and between classrooms and communal rooms are removable system-built walls. The floors are covered with carpeting.

Explanation to the ground floor plan

- | | |
|-------|-----------------------|
| 1 - 9 | home bases 4-12 years |
| 10 | playing area |
| 11 | handicraft |
| 12 | multi-purpose area |
| 13 | teachers room |





Surface analysis

	m2	m2
school building: gross surface		1.135
net surface of teaching rooms		862
3 play- and workrooms of 78 m2 each	234	
hall for playing	110	
6 classrooms of 63 m2 each	378	
communal room *	140	
percentage net/gross 76%		
site : surface school site		4.000
built-up area		1.150
playgrounds		2.850

* excluded 30 m2, a reservation of area for staff and storage

In the series International School Building News has been published recently:

"Advisory and Information Services".

Information sheet about the work and the function of the Information Centre for School building in the Netherlands. ISN. Vol. 8/1974/no. 1.

"School Building in Early Development" part 1.

This study deals with the educational problems in developing countries, part 1 of this report deals with problems arising from the present rates of "drop out" in traditional primary education and proposes possible methods. ISN. Vol. 9/1975/no. 1.

"School Building in Early Development" part 2.

School planning and school building in modern education. ISN. Vol. 10/1975/no. 2.

"School and Community".

A programme and five architectural designs for an integrated accommodation in Amsterdam (area Banne-Buiksloot II).

ISN. Vol. 11/1976/no. 1.

"Renovation" of Buildings for Basic Education.

An inventory of the present situation and possibilities, and the promotion of a development in renovation. 10 Examples of renovated plans are included.

ISN. Vol. 12/1976/no. 2.